

OTHER PUBLICATIONS

Negroponte and Jacobson, "Surface and Displays," *Wired*, Jan. 1997, p. 212.

Ota et al., "Developments in Electrophoretic Displays," *Proceeding of the S.I.D.*, vol. 183 & 4, Third and Fourth Quarters, Aug. 1977, pp. 243-254.

Andrew T. Dalisa, "Electrophoretic Display Technology," *Transactions on Electron Devices*, vol. ED-24, No. 7, Jul. 1977, pp. 827-834.

Croucher et al., "Electrophoretic Display: Materials as Related to Performance," *Society of Photographic Scientists and Engineering*, vol. 25, No. 2, Mar./Apr. 1981, pp. 80-85.

Shiwa et al., "Electrophoretic Display Method Using Ionographic Technology," *SID 88 Digest*, Jan. 1988, pp. 61-62.

Primary Examiner—John E. Breene

Assistant Examiner—Cheryl Lewis

Attorney, Agent, or Firm—Testa, Hurwitz & Thibault, LLP

[57]

ABSTRACT

A process for creating an electronically addressable display includes multiple printing operations, similar to a multi-color process in conventional screen printing. In some of the process steps, electrically non-active inks are printed onto

areas of the receiving substrate, and in other steps, electrically active inks are printed onto different areas of the substrate. The printed display can be used in a variety of applications. This display can be used as an indicator by changing state of the display after a certain time has elapsed, or when a certain pressure, thermal, radiative, moisture, acoustic, inclination, pH, or other threshold is passed. In one embodiment, the display is incorporated into a battery indicator. A sticker display is described. The sticker is adhesive backed and may then be applied to a surface to create a functional information display unit. This invention also features a display that is both powered and controlled using radio frequencies. It describes a complete system for controlling, addressing, and powering a display. The system includes an antenna or antennae, passive charging circuitry, and active control system, a display, and an energy storage unit. There is also a separate transmitter that provides the remote power for the display. The system is meant to be used anywhere it is useful to provide intermittent updates of information such as in a store, on a highway, or in an airport. A tile-based display allowing a modular system for large area display is created using a printable display material.

20 Claims, 8 Drawing Sheets